

**REMARKS**

In the Final Office Action mailed February 12, 2008 claims 1-30 and 35 were rejected under 35 U.S.C. 103(a).

**Summary of Examiner's Interviews**

Applicant thanks the Examiner for the telephonic interviews of April 28, 2008 and May 23, 2008 during which, among other arguments set forth below, Susan Doughty and Peter Johnson asserted that the element of "pre-coated" diatomaceous earth hydroxide-gels as set forth in independent claim 15 is neither taught nor suggested by the prior art cited by the Examiner, and thus a *prima facie* case of obviousness with respect to claim 15 is not established.

**35 U.S.C. 103(a)**

**Misra/Miyama/Wang/Mills**

In the Final Office Action, claims 6, 7, 15-23, 25, and 26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Misra et al. 6,197,201 in view of JP publication 2001340874A Miyama and Wang et al. 5,064,531, and further in view of Mills 5,683,953. However, the Examiner has not asserted or identified any teaching in the prior art that teaches or suggests "*contacting* said arsenic-containing water with said diatomaceous earth *pre-coated hydroxide-gels*" as set forth in claim 15 (emphasis added). Claim 15 makes it clear that the diatomaceous earth is pre-coated *before* coming into contact with arsenic-containing water. This element is neither taught nor suggested by the prior art cited by the Examiner.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined)

must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991), cited from MPEP 706.02(j).

The specification clarifies the process for pre-coating diatomaceous earth with hydroxide-gels before placing the pre-coated material in contact with arsenic-containing water. Specifically, diatomaceous earth is first pre-coated with hydroxide gels, permitted to age for a period of time (e.g., 24 hours), then stored for later use when later applied to arsenic-containing water. See, page 17, line 15 through page 18, line 21 ("After 24 hours aging time, the mixture was then stored for later use."). This cure period allows the hydroxide-gels to bond to the diatomaceous earth.

Wang teaches a diatomaceous earth filter as a "precoat filter" (see Wang column 2, line 56), but does not teach diatomaceous earth pre-coated with hydroxide-gels prior to contacting the pre-coated diatomaceous earth with arsenic-containing water. The precoat filter of Mills is merely a diatomaceous earth filter bed. The current specification clearly distinguishes this pre-coat DE filter bed from DE coated with metal salt hydroxide gels, however:

"DE coated with metal salt hydroxide-gels can be used to coagulate arsenic which can further be filtered through a second DE bed or pre-coat DE bed..."

See page 4, lines 15-18 of current specification; see also Fig. 7 for the independent addition of the Coated-DE Feed prior to filtering through the DE Pre-coat Filter. The current specification further highlights the importance of the combination of pre-coated DE hydroxide-gels as "powerful coagulants for removing arsenic from drinking water" with a DE precoat filter, which filter is "uniquely suitable for [the] DE-containing hydroxide-gels". See page 17, lines 11-13.

Mills, a reference to non-analogous art for treatment of swimming pool water rather than drinking water, teaches using diatomaceous earth and Al(OH)<sub>3</sub> in a slurry to remove phosphate from swimming pool water when left overnight. However, Mills does not teach pre-coating diatomaceous earth with hydroxide-gels and then later "contacting said arsenic-containing water with said diatomaceous earth pre-coated hydroxide-gels" to remove arsenic from drinking water as required by claim 15. As described above, pre-coated gels are "powerful coagulants", as further illustrated in the unexpected results of Table 15 at page 17 of the specification. Table 15 shows removal of over 90% of arsenic concentration from drinking water in only 5 minutes by use of pre-coated DE hydroxide-gels. These results are clearly superior to the teachings of Mills, which describe flocs from treatment of a swimming pool that "form and settle overnight" (column 8, line 9).

### CONCLUSION

In view of the above arguments and amendments, it is believed all rejections with respect to claim 15 and the claims that depend from claim 15 are overcome. Reconsideration and withdrawal of the rejections applied thereto is respectfully requested. This response is accompanied by a Petition for Extension of Time (one month) and an authorization to charge the fee due (believed to be \$120.00) to Deposit Account No. 07-1969. If this is incorrect however, please charge any fees required, including any extensions of time required, from Deposit Account No. 07-1969.

Respectfully submitted,



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